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KNOWLEDGE

VOL 3 NOVEMBER 2009

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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KNOWLEDGE
OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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Mission statement: USACRC supports our Army by collecting, storing, analyzing, and communicating actionable information to assist Leaders, Soldiers, Families, and Civilians in preserving/protecting our Army's combat resources.

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SO MUCH
BE THAN

The season of giving thanks is upon us and with it comes an opportunity to pause and reflect on the many blessings that have touched our lives this year. This time of year always reminds me how lucky we are to be part of an amazing Band of Brothers and Sisters that remains steadfast in the quest to protect each other and the United States of America.

For more than 234 years, this great Army's mission has been to fight and win our nation's wars and, during the past several years, our team has been fighting overseas contingency operations in places like Iraq and Afghanistan. I am tremendously thankful for these great men and women who continue to stand point to protect our nation and remain dedicated to preserving our way of life.

My gratitude for our Soldiers and the great work they do every day extends beyond traditional unit boundaries to encompass the Family members who make their Soldier's success possible. The men and women who keep the home fires burning while their Soldier is busy training and fighting

> Caring for Soldiers and **AVOIDING COLD WEATHER PROBLEMS** are both an **INDIVIDUAL** and **LEADERSHIP** responsibility.

H TO KFUL FOR

hold a very special place in our Army Family and I am very thankful for their many contributions.

Because of your individual and collective efforts and skills, we have been successful where others before us have failed. Your skills in identifying and assessing hazards and defining and implementing controls to reduce risks have contributed greatly to this success, and I thank you for your dedication to our Army's safety.

Although it is appropriate to celebrate our successes, now is no time to let our guard down when it comes to safety. With the full effects of winter being felt across our installations, careful attention must be paid to prevent cold weather injuries. Caring for Soldiers and avoiding cold weather problems are both an individual and leadership responsibility. Leaders must train Soldiers to the standard in prevention, recognition and first aid for cold weather injuries and enforce those standards.

The extra time we take preparing our Soldiers for cold weather will reduce injuries and result in a huge payoff in increased unit readiness. For additional information and tools you can use to manage risk and decrease the chance of fall/winter incidents, accidents and injuries, visit https://safety.army.mil and look for the Army Safe Fall/Winter campaign logo at the bottom of the Web page. We are a Band of Brothers and Sisters, both on and off the battlefield. And with the arrival of colder temperatures, it's "no time to chill" when it comes to safety.

Many of you will enjoy the comforts of home and joys of being with Family this holiday season. If you are traveling, I urge you to be extra cautious on our nation's highways, as POV accidents are still the No. 1 off-duty killer of our Soldiers. Be extra vigilant in identifying, assessing and controlling hazards by using the online TRiPS planning tool. Remember, a moment's lapse in awareness can easily result in tragedy.

As we bow our heads and give thanks during November's Veterans Day and Thanksgiving celebrations, know that a grateful nation acknowledges the many sacrifices made by you and your Family members this year. To all of you who put your lives on the line every day to defend this great country, know that we, as a nation, are truly grateful for your service.«

WILLIAM T. WOLF
Brigadier General, USA
Director of Army Safety

'Tis the Season to Celebrate Safely

STAFF SGT. RONALD JEROME BROWN
Fire Prevention
[illegible]th Military Police Detachment,
Directorate of Public Safety
Fort Rucker, Ala.

As the holiday season approaches, many of us are finalizing our Christmas wish lists, planning big meals and decorating our homes. During this exciting time, however, we must not forget that the holidays also bring an increased risk of home fires.

According to the National Fire Protection Association (NFPA), December and January are the peak months for home fires, deaths and injuries. Families looking to spread holiday cheer should be aware that each year an average of 240 home fires start with Christmas trees and an additional 1,300 begin with various other seasonal decorations. When decorating your home this holiday season, keep the following tips in mind.

Trees

Fire is the primary concern with a live Christmas tree, which is often brought on by the combination of electrical malfunctions and a drying tree. To help cut the risk of tree fires, you should always purchase a freshly cut tree. A good test of a tree's freshness is to hold a branch between your thumb and forefinger and pull your hand toward you. If the tree is fresh, it should lose very few needles.

It's also a good idea to do the "bump" test. Bump the base of the trunk against the ground and see if an excessive amount of needles fall off. It's normal for a tree to lose a few needles; however, a lot of falling needles could signal the tree is drying out and could become a fire hazard.

Once you've selected a tree, be sure the water reservoir on the tree stand is large enough for the tree and keep it full at all times. Stands should provide one quart of water per inch of trunk diameter. The average 6-foot tree has a 4-inch diameter trunk and can consume as much as four quarts, or one gallon, of water per day. For those who forget to keep their tree watered, an automatic tree waterer would be a wise investment.

When selecting a location for the tree, make sure it is not close to a heat source such as a radiator or furnace vent, which could cause it to dry out faster. Never place a tree near a fireplace because sparks can ignite the branches, decorations and gifts underneath. Keep your tree at least three feet from fireplaces, radiators, space heaters, heating vents and other sources of heat, and don't place it where it could block an exit.

It's also important to consider how long you plan to display your tree. The NFPA recommends you take down even a well-watered tree after four weeks. So, if you decorate your live tree immediately after Thanksgiving, it should be discarded the week after Christmas, not the week after New Year's Day.

Lights

Another concern with a live Christmas tree is the fire danger brought on by electrical malfunctions. Examine holiday lights, extension cords and other electrical items whether they are new or old. All of these items should feature the Underwriters Laboratories (UL) mark (the letters "UL" inside a circle), which means samples of the product have been tested for risk of fire, electric shock and other hazards.

Before plugging in lights and other electrical decorations, inspect for frayed cords, cracked sockets, broken bulbs or burned plugs and signs of wear and damage. It's best to position the tree in a corner or a less-traveled area near an outlet to eliminate the use of an extension cord. If you do need an extension cord, make sure you run it along a wall so it won't be a tripping hazard.

Ensure your indoor-only lights, decorations and extension cords have green holographic UL marks. Light strings intended for indoor and outdoor use have red holographic UL marks. Also, don't use nails or staples to hang your lights. Instead, purchase plastic hooks or clips that are designed for hanging light strings. Always be sure to unplug tree lights and decorations before leaving home or going to bed.

For more information on holiday electrical safety, see the story "Deck the Halls" on page 7.

Candles

December is also the peak time for home candle fires. In fact, Christmas Eve, Christmas Day and New Year's Eve are among the top five days of the year for home candle fires. Candles are responsible for at least 71 percent of December home fires due to improper decorating practices or candles left unattended.

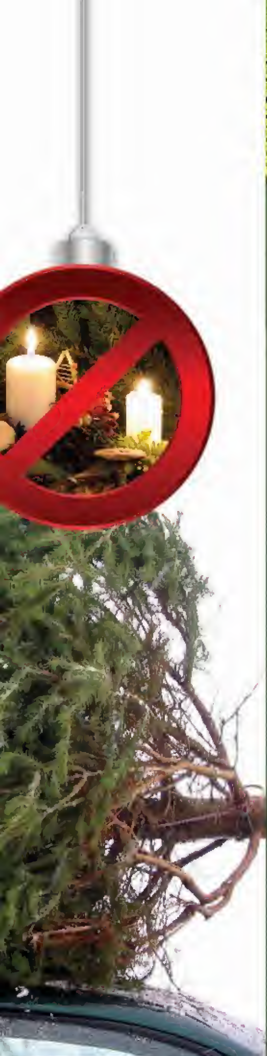
Candles should be kept away from decorations, curtains, walls, bedding, paper, furniture and other combustible material, as well as places or paths where they could be accidentally knocked over. Make sure you use sturdy, noncombustible candleholders that will collect dripping wax. Candles should never be used as Christmas tree ornaments. Remember to always blow out your candles before you leave your home or go to sleep.

Of course, all homes should have working smoke detectors installed. Make sure you test your smoke detectors every month to ensure they're in proper working condition, and change the batteries every six months. A good rule of thumb is to use Daylight Saving Time as a reminder to replace the batteries.

Decorations are supposed to brighten the holiday season. When decorating your home this year, make safety a priority. With just a little bit of effort, you can help ensure your Family has a safe and happy home for the holidays.«

DID YOU KNOW?

According to the National Fire Protection Association, nearly 13,000 people visit the emergency room each year with holiday decorating-related injuries.



DECK THE HALLS

MATTHEW CHURCH
Watervliet Arsenal Safety Office
Watervliet, N.Y.

Decorating the home for the holiday season is a great tradition. However, don't forget that an essential part of stringing the lights and putting up the Christmas tree is keeping an eye on electrical safety. Here are a few simple steps to help ensure you have a safe holiday season:

- Don't overload electrical circuits. Check fuses or circuit breaker panels to see what your home can handle and stay well within the limits.
- Avoid putting too many strings of lights together and plugging them into a single outlet.
- Watch for flickering lights; sparks from appliances or wall outlets; warm plates, plugs or outlets; and dimming lights or television screens. These signal potential danger spots that could cause an electrical fire.
- Make sure there's a bulb in each socket. If a bulb burns out, leave it in until you have a replacement. Immediately replace any broken bulbs that have exposed filaments.
- Use only Underwriters Laboratory (UL)-approved equipment. Check for frayed cords, cracked insulation and damaged plugs.
- Surge protector strips are a safe option if you need more outlets.
- Match plugs with outlets. Never force a three-pronged plug into a two-hole outlet or extension cord.
- Don't run extension cords under rugs, around furniture legs or across doorways.
- If you have children in the house or are expecting young visitors, inspect your home for cracked or missing outlet covers. Use safety caps to cover outlets.
- Keep live Christmas trees well watered to prevent bulbs from igniting dry branches. Never use electrical decorations on metal trees. Instead, place colored spotlights beside or above the tree. If using an artificial tree, make sure you purchase one that is inflammable.
- Fasten outdoor lights to the house with plastic hooks or clips to protect the lights from wind damage. Do not nail, tack, pinch, nick or stress wiring.
- Outdoor lighting should have insulated electrical cords and be plugged into a ground fault circuit interrupter-protected receptacle only. Keep all plugs and connectors off the ground and away from puddles and snow.«

Food for Thought

SGT. CASSANDRA JAMERSON, SPC. MATTHEW LAIRD AND PFC. ANNEL TORRES
Veterinary Food Inspection Section
Fort Rucker, Ala.

With Thanksgiving and Christmas fast approaching, many people are thinking about what they'll be preparing for their holiday feasts. Most will likely center their meals around a plump turkey, juicy ham or both. Before settling down at the table for your holiday meals, make sure you review the following tips to help eliminate any potential food safety issues.

Proper Hand Washing

Before and after handling any raw foods, wash your hands thoroughly with soap by rubbing them vigorously for 15 to 20 seconds until you work up a lather. Make sure you scrub between your fingers and under the fingernails. Rinse your hands well under warm water and dry them with a paper towel. Work surfaces and utensils, knives, cutting boards, sponges and towels should also be washed in hot, soapy water after every use. This will help prevent cross contamination.

Thawing the Bird

It's best to allow a frozen turkey to thaw in a refrigerator. To determine how long it will take to thaw, calculate five hours per pound. If you have a 15-pound turkey, it should take about 75 hours, or a little more than three days, to thaw.

A turkey can also be thawed using the cold water method. This is done by putting the bird, while still in its original wrapper, in the sink and covering it with cold water. Change the water every half hour to maintain the temperature. Allow the turkey about a half hour per pound to defrost. Therefore, a 15-pound turkey should thaw in a little more than seven hours. Do not thaw a turkey in the microwave because it does not heat evenly.

No more than an hour before you're ready to pop the turkey into the oven or deep fryer, remove it from the refrigerator to bring it to room temperature. Make sure you rinse the whole bird, to include the neck and body cavity, by running it under cold water. Rubbing your hands over the surface will help remove any physical contamination. Now the turkey is ready to be cooked.

FYI

Make sure you follow proper food safety guidelines when preparing your holiday feasts. The U.S. Department of Agriculture recommends the following as minimum safe internal food temperatures:

- **Beef, veal, lamb, steaks, roast: 145 F**
- **Fish: 145 F**
- **Pork: 160 F**
- **Ground beef, veal and lamb: 160 F**
- **Egg dishes: 160 F**
- **Turkey, chicken and duck (whole, pieces and ground): 165 F**

Is it Ready Yet?

The internal temperature of the turkey must reach a minimum of 180 F in the thigh, while the center cavity should reach 165 F. Turkey and ham both reach doneness at a temperature of 170 F when checked in the turkey breast or the thickest part of the ham. You can also prick the leg joint of the turkey with a fork to test the color of the juices. The turkey is done when the juices run slightly pink or clear.

Storing Leftovers

Refrigerate the cooked turkey or ham and other leftovers within two hours of cooking. The turkey should never be stored with the stuffing still inside. Instead, remove the stuffing and refrigerate it in a separate container. Divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator. When you're ready to eat the leftovers, reheat them to a temperature of 165 F. Remember to consume or throw away the leftovers within three days of cooking.

Fresh Fruits and Vegetables

If your holiday meals include fresh fruits or vegetables, make sure you properly wash and/or rinse them before consumption. When slicing or chopping fruits and vegetables, make sure no meat or raw materials have been processed on that cutting board.

Nothing ruins the holidays quite like a case of food poisoning. Stick to the food safety guidelines above when preparing your meals and you'll give your Family one more reason to be thankful this holiday season.«

SEASONS CHANGE, SAFETY DOESN'T
ARMY SAFE
FALL WINTER
NO TIME TO CHILL
GEAR UP!
GO TO HTTPS://SAFETY.ARMY.MIL FOR MORE INFORMATION

In-flight ICING Almost Causes Disaster

CHIEF WARRANT OFFICER 2 PARKER H. PRIEST
Detachment 1, Company H, 171st Aviation Battalion
Florida Army National Guard
Brooksville, Fla.

Editor's note: This incident was briefed by the pilot in command and pilot in an after-action review. All crewmembers gave their permission for the author to tell their story.

The mission was to fly a C-23B twin-engine turboprop aircraft from Lima, Peru, to the United States with sensitive cargo onboard. The crew consisted of an experienced pilot in command (PC) with 3,000 hours of fixed-wing time, a pilot (PI) with 600 hours, a flight engineer (FE) with more than 4,000 hours and a civilian contract mechanic.

The crew conducted a thorough risk assessment and determined the mission to be low risk. En route weather was expected to be fair with the possibility of light icing at their planned flight level (FL). No mechanical issues were found with the preflight, and the weight and balance was well within the aircraft's center of gravity limitations.

After a quick weather update and crew brief, the crew started the aircraft and taxied out to begin their mission. After final run-ups and ground checks, the crew determined that all equipment, including aircraft anti-icing and deicing equipment, was operating correctly. The crew took off and climbed to their assigned altitude of FL 190. After reaching their assigned altitude, the crew performed their level-off checks, noting the outside air temperature was minus 2 C and visible moisture was present. The crew then turned on all aircraft deice and anti-icing equipment, including the ice detector. Considering the current conditions, the flight crew discussed the need for added vigilance by all crewmembers to recognize and react to severe icing conditions because the aircraft was operating near its service ceiling.

Two hours into the flight with the autopilot engaged, the aircraft flew through what appeared to be normal clouds at their FL. The PI noticed the aircraft starting to pitch up slightly and he felt a slight vibration in the flight controls. He immediately checked the airspeed indicators and saw that the airspeed was decreasing rapidly from 140 to 120 knots indicated airspeed. He informed the PC of the indications. The PC verified the indications and took manual control of the airplane while advancing both power levers to the maximum power available. The airspeed was still dropping and the aircraft began to buffet — the first onset of a stall. The PC executed the stall recovery procedures outlined in the aircrew training manual (ATM) by lowering the nose to regain airspeed with full power applied. Despite full power and the lowered nose, the aircraft continued to lose altitude and entered a robust buffet, losing more than 1,000 feet. Both the flight engineer and mechanic noted heavy, immediate, clear ice accumulation on all leading edge surfaces of the aircraft.

The PC continued trying to recover the lost altitude and noticed the prop levers had not been advanced to their maximum power. He pushed both props full forward and the aircraft began to level off and recover. After a short time, the aircraft was able to climb and recover its lost altitude. The flight continued without further incident at the same FL.

Lessons Learned

What happened? Was it a bad judgment call on behalf of the PC to fly the mission and assess the risk as low? Did the crew follow incorrect procedures? Was there a lack of crew coordination? Did the crew overestimate their capabilities of flying in icing conditions with their experience? Did aircrew training factor into this? Or was it simply the environmental conditions that led to the aircraft stalling? Perhaps the reason for the stall was a combination of all of these possibilities.

- **What could the crew have done differently?** The route of flight required them to cross the Andes Mountains. The lowest possible minimal en route altitude was 17,000 feet and the service ceiling for the aircraft was 20,000 feet. The icing conditions existed between 15,000 and 23,000 feet. The crew knew about the icing conditions and not having the option to climb or descend. They had discussed this situation in detail during the crew brief that morning and still assessed the hazard as low risk and proceeded with the flight. It wasn't a concern for the crew because the aircraft was equipped with deice and anti-icing equipment and had been operated in similar conditions many times without incident.
- **Instrument meteorological conditions (IMC) were forecast for the flight-planned altitude; however, no precipitation was expected.** The C-23B was well equipped for icing and had flown in moderate to heavy icing conditions many times in the past. There is always a chance of encountering IMC over high mountains; however, no other route was available. For that reason, the crew acknowledged a need for added vigilance and painstakingly guarded the fuel and alternate requirements.
- **Did the aircrew follow incorrect procedures?** Per aircraft flight manuals and crewmember training, the crew deployed all of the aircraft's anti-icing and deicing equipment once entering into visible moisture with the outside air temperature at 10 C or less. However, the Federal Aviation Administration's (FAA) Advisory Circular (AC) 91-51A, Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems, recommends disengaging the autopilot and hand flying the airplane. The autopilot could mask important cues or actually self-disconnect and present unusual attitudes or control conditions. Although the AC is not regulatory, had the aircrew been aware of the FAA's recommended procedures, they might have noticed the aircraft was accumulating icing much sooner, therefore noticing when the aircraft first pitched up and began to lose airspeed and altitude.
- **Would crew coordination prevented this incident?** The PI noticed the decreasing airspeed and executed good crew coordination practice by announcing what he saw to the crew. When the PC took control of the aircraft, he quickly noticed the propellers were not at maximum power. After the PC placed the propellers to maximum power, the aircraft regained altitude and airspeed.
- **Could more realistic training prevented the PC from making a potentially fatal error?** The C-23 ATM stall recovery procedures are performed with the propellers pre-configured at the maximum (full props) before the stall occurs. Therefore, pilots train by using power and pitch to recover from stalls versus using power, props and pitch. The PC executed the stall recovery as he was trained, not thinking about the propellers because the propellers are preconfigured. It's important to remember that in an emergency, the instinctive reaction of the flight crew will be directly in accordance to their training.
- **Did the environment cause the incident?** Yes, unquestionably, icing caused the aircraft to stall. As it turned out, the aircrew had flown through a cloud containing "super-cooled" precipitation that overwhelmed the aircraft anti-ice system with large amounts of ice in a very short time. Nevertheless, this was the only factor the aircrew could not change. They could have simply avoided the icing conditions by canceling the mission altogether; however, at the altitudes required for this flight, delaying was not an option to avoid the icing. The aircrews had limited experience in flying in icing conditions and were not fully aware of various practices outside of their training. Unfortunately, the crew didn't find this out until this flight.

Conclusion

The lessons learned from this near accident are a reminder of what's at stake every time Army aviators take off to execute a mission or perform a training exercise. Many contributing factors typically lead to an accident and this chain of events can transpire at any given time — from preflight planning, through the en route phase of flight to the final landing rollout. Had this crew not conducted detailed pre-mission and in-flight planning, strong aircrew coordination skills and reacted in prompt time, an accident would have occurred, destroying an aircraft with a resultant loss of four lives.«

KEEP GOIN' in the Sn

MASTER SGT. RAYMOND CADORET
Command Readiness Center
Rhode Island Joint Force Headquarters
Cranston, R.I.

Driving is a challenging task. Traffic, road construction, rain, kids making noise, the radio and ringing cell phones can all be very distracting. Couple that with slick wintry roads, black ice, snow and sleet, and you've added a whole new element to driving. Toss in those four-wheel-drive owners who think they can still go 60 mph on these roads and the risks rise considerably.

While you can't control the weather or other drivers, you can apply composite risk management (CRM) to reduce your driving risks.

First, identify the hazards. Among those are things such as black ice, snow accumulation and other traffic, including snowplows and vehicles spreading sand or salt. Checking your local weather forecast and road conditions can help keep you on top of these hazards.

Second, assess the hazards. Examine each one in terms of its probability and severity should an accident happen. Consider historical lessons learned, experience levels and judgment. If you've had an accident driving on icy roads, you know the possible consequences. Ask yourself, "Is this trip necessary?"

The third and fourth steps — developing controls and making risk decisions, and implementing controls — can begin well before the first snow falls. One important part is winterizing your vehicle.

One of the most overlooked parts of vehicle maintenance is replacing the windshield wiper blades. Automobile experts recommend these be changed annually because torn, cracked and dry-rotted blades can fail to keep your windshield clear when driving through rain, sleet or snow. Also, fill your windshield washer reservoir with a fluid designed for the cold temperatures where you'll be driving. If needed, you can supplement your washer fluid with concentrates designed to keep your windows clear at extremely low temperatures. Keep an extra bottle of fluid in your vehicle so you won't run out in the middle of a trip.

Check your battery and charging system. Overlooked batteries can lose power when temperatures drop, making it hard to start your vehicle.

Tires are also a vital part of safe winter driving. Maintaining the best possible traction with

“**WATCH** your **FUEL LEVEL**, keeping your **TANK** at least **HALF FULL** to **REDUCE** moisture **BUILDUP INSIDE** the fuel **TANK**.”

the roadway is crucial in determining how well your vehicle rides, turns and stops. Make sure your tires have plenty of good, deep tread and are properly inflated. Remember, your tire pressure drops about 1 psi for every 9-degree-Fahrenheit drop in temperature. While you're at it, check your spare tire for proper inflation. While checking your spare, locate your jack and the other equipment you'll need for changing tires.

Check your radiator to make sure it has the proper amount of coolant and has been properly serviced. It is important to have the radiator flushed and the coolant changed periodically. Your owner's manual will tell you when that needs to be done. While many antifreeze products are pre-mixed, if yours isn't, a 50-50 mix of coolant to water is normally appropriate. When in doubt, check your owner's manual.

Watch your fuel level, keeping your tank at least half full to reduce moisture buildup inside the fuel tank. Knowing you have enough fuel can give you peace of mind when stuck in traffic. Remember, as long as you have fuel, a properly maintained engine can idle indefinitely, keeping you warm inside your vehicle.

There are also some useful items I recommend you keep in your trunk. Those include a blanket or two, a snow shovel, some cat litter or sand, a fire extinguisher, an old pair of boots, jumper cables, proper-fitting tire chains, flares and a first aid kit. And, of course, you'll need a snow brush and ice scraper to clear off your windows, mirrors, headlights and brake lights. This will help you to better see and be seen by others. Warming up your car before driving is also a good idea. This allows your oil and coolant to reach operating temperature and your heater to warm up and clear your windows.

Here are some tips to use while driving. Everyone knows hurrying increases the risk of an accident, so allow yourself extra time to get to your destination. When driving in snowy conditions, allow extra stopping distance when approaching intersections. Begin braking early just in case you begin sliding on the snow or ice. On primary and secondary roads, increase your following distance to allow ample stopping time in poor weather.

You can use your vehicle's transmission to help maintain control. By downshifting a manual or automatic transmission, you can use your engine's braking power to help slow you. Some

newer automatic transmissions offer a second gate for the shift lever that allows you to upshift or downshift through the gears as desired.

Don't panic if you go into a skid. If your vehicle has an antilock braking system (ABS), brake firmly and steer in the direction you want to go. If you don't have ABS, steer into the skid and avoid braking. A good tip to remember is to always look in the direction where you want your car to go.

On the road, drive with low-beam headlights and stay in the right-hand lane. Should you become stranded or stuck in snowy conditions, don't panic. If blizzard conditions make it hard to see or you're unable to shovel out of the snow, remain in your vehicle. Stay as warm as possible and limit your exposure to the wintry conditions.

Turn on your flashers or set up flares. Run the car in 10-minute intervals to provide heat while conserving fuel. Make sure your tailpipe is free of snow and slightly open a window on the downwind side of your vehicle to prevent the buildup of carbon monoxide. Use your blanket to help stay warm, but avoid falling asleep or staying in the same position for too long. Also, monitor yourself and other passengers for frostbite and hypothermia.

The final step of CRM is to evaluate how well your control measures worked. Did you arrive at your destination without an accident? If you did have problems, ask yourself what you could have done differently and make that a part of your controls in the future.

Taking your time, maintaining good situational awareness and planning for the possible hazards on the road will greatly improve your chances of arriving safely at your destination this winter. And by the way, keep an eye out for those overconfident drivers who flew by you in their 4x4s. Chances are you'll see them again a few miles up the road — in the ditch.«

SLOW CONNECTION?
LIGHTEN UP!
https://safety.army.mil/lite
U.S. ARMY COMBAT READINESS/SAFETY CENTER
Home Page - Lite Version
ACCIDENT REPORTING & INVESTIGATION
U.S. ARMY COMBAT READINESS/SAFETY CENTER
https://safety.army.mil/lite

The Safety Center's home page is now available in a lite capacity to allow forward-deployed Soldiers with limited Internet connectivity access to the risk mitigation tools and resources they need.

AIRCRAFT MAIN

Vital in

PAULA ALLMAN
Strategic Communication Directorate
U.S. Army Combat Readiness/Safety Center
Fort Rucker, Ala.

Army aviation missions encompass the globe in all kinds of environments — from hot to cold, arid to wet and clear to cloudy. As the winter months approach, you must be vigilant, not only in your flying, but in the care and feeding of your aircraft. Just as in the Challenger accident below, if you do not perform proper cold weather maintenance procedures, Old Man Winter can reach up and bite you.

None of us will ever forget the Challenger space shuttle exploding shortly after launch in January 1986. Severe cold temperatures that had reached into normally warm Florida had reduced the resiliency of rubber O-rings on the right solid rocket booster, paving the way for hot exhaust gases to escape. Despite all the science and technology involved, the Challenger fell victim to the effects of cold temperatures on a simple O-ring. Is it any wonder that we want to remind you that cold weather can have adverse effects on the aircraft you fly?

Air and hydraulic fluid leaks are amplified as the temperature drops. Hydraulic cylinders and actuators can leak fluid

NTENANCE
Cold Weather

because O-rings, seals and gaskets are less pliable and become deformed at lower temperatures. In addition, ice crystals in hydraulic fluid may cut seal materials. Air leaks develop as seals and line connections contract at different rates.

Mechanical and hydraulic controls become sluggish in cold weather. Unauthorized lubricants that seemed to work properly in warm weather will stiffen and cause bearings to require added force to move as the temperature decreases. Moisture condensation causes water to accumulate in fuel tanks, especially in tanks that are not kept full. If the water freezes, it could close filters, fuel lines and valves.

Hydraulic accumulator pressure differs with ambient temperature and rotor damper vent valves have temperature restrictions. These and other factors make by-the-book maintenance and operation mandatory.

Many of the procedures dictated in maintenance and operator's manuals were developed as the result of lessons learned the hard way. Therefore, when units move from a warm environment to a much colder one, it is important that all personnel carefully review manuals to ensure adjustments are made for the new environment. Simple actions such as wiping down exposed hydraulic pistons and thoroughly preheating the aircraft helps alleviate problems associated with extreme cold weather. Most manuals contain specific guidance on how to do these tasks to standard.

In addition to maintenance and operator's manuals, Technical Manual 1-1500-204-23-8, General Aircraft Maintenance, is an excellent reference for cold weather operations. Chapter 10, Arctic, Desert and Tropic Maintenance, outlines steps to prevent the adverse effects of cold weather.

The key to successfully dealing with the negative effects of extreme cold temperatures is planning and preparation. Knowing what to do and having the equipment to do it are critical for safe cold weather operations.«

Safe and Sound

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In the world of safety professionals, the focus on safety culture is aimed at the whole organization. This is also the case for the Army, but every commander is responsible for having safety in his or her organization. However, to make it effective, every Leader down to the lowest level must be engaged.

If you're a small-team Leader, developing a safety culture should be your highest priority. No Leader can afford to lose personnel due to injury or illness, especially those at the small-team level. You depend on every Soldier/individual to fulfill a vital function, and you're personally invested in their lives.

There are several ways you can cultivate your team's safety culture. The first step is to know where your team rates in its sense of attitude, approach and involvement. Take the survey on page 19. Answer each question honestly to gauge your team's performance. For an even better sense, let each member of your team take the survey and average the results. When you are finished, tally your results and continue reading this article.

Awareness of your team's dynamic safety culture is only a starting point. What you do with it is what will make the difference. Carefully review the areas needing attention from the survey. Where do you need improvement and how can you accomplish that? Set specific objectives; be sure to include timelines, responsibilities and measures of achievement. Contact your safety officer/manager for advice and answers to questions on policy.

Remember that safety culture is an ongoing process. What you accomplish at the team level will reflect upward and outward. Share your successes and lessons learned. Don't be afraid of change and encourage every member of your team to work toward the goal of returning home each day.«

KEY

Yes = definitely happens in my group
? = not sure, sometimes or partially true
No = seldom or never happens in my group

Author's note: The checklist on page 19 was adapted from "Managing the Risks of Organizational Accidents" by Dr. James T. Reason. The information provided in this article is given solely for information and guidance. This is not an Army program.

SAFETY CULTURE CHECKLIST	YES	?	NO
MINDFUL OF DANGER. The team Leader is mindful of the human factors that can endanger the operations.			
ACCEPT SETBACKS. The team Leader anticipates that personnel will make errors and trains them to detect and recover from errors.			
COMMITMENT. The team Leader is genuinely committed to safety and provides resources to achieve it.			
REGULAR MEETINGS. Safety is discussed in every planning session, not just after an accident.			
ACCIDENT REVIEW. Every accident is reviewed and lessons learned are reported and reacted to.			
IMPROVED METHODS. Lessons learned are used to improve methods and systems, not to assign blame.			
CONTINUOUS IMPROVEMENT. The team Leader assesses the safety culture routinely and looks for ways to improve.			
INSTITUTIONAL FACTORS CONSIDERED. Standards of performance are adhered to, but challenged if found to produce an unsafe situation or environment.			
DATA. The team Leader reports mishaps and near misses to the safety manager.			
HOLISTIC VIEW ON SAFETY. The team Leader treats safety as a culture and not just a reaction.			
SAFETY MEETINGS. The team is involved in regular safety meetings and contributes to the meetings.			
CAREER BOOST. Additional duty as a safety officer is seen as career enhancement, not a job burden.			
ECONOMICS. The team Leader makes a reasonable assessment of cost verses safety in determining appropriate levels of protection.			
REPORTING ENCOURAGED. The team Leader encourages personnel to report all events.			
INDEMNITY. The individual/Soldier can report mishaps and near misses without fear and is aware of Army policy on reporting.			
BLAME. The individual Soldier understands that the safety program does not administer punishments; however, negligent behavior may be a criminal act under the Uniform Code of Military Justice.			
NONTECHNICAL SKILL. The mental knowledge and attitude to identify and use safe work practices.			
TECHNICAL SKILL. The team Leader identifies hazards and risks (composite risk management) and trains the team to respond and recover from mishaps.			
ACKNOWLEDGE ERROR. The team Leader has the will and courage to acknowledge errors and apply the lessons learned.			
TOTALS			

About your score:

Each "yes" answer is worth 1 point; each "?" answer is worth 0.5 points; and each "no" answer is worth 0 points. How do you rate?

16-20 points. Exceptional dynamics; stay on focus.
11-15 points. Good safety culture; continuous improvement will take you higher.
6-10 points. Typical performance; look for ways to improve your group.
0-5 points. Need for change; your group is vulnerable.

Buzzed

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"If I've heard it once, I've heard it a thousand times." These are the words uttered by many Soldiers who have received safety briefings or been reminded by Leaders before a long weekend to be safe and "don't drink and drive." Yet, time and time again, Soldiers get into their vehicles after drinking too much alcohol and drive home impaired.

The night starts off innocently enough. You meet a group of friends at a local hangout to wind down from a long and stressful work week. Throughout the night, you focus on having fun and enjoying your friends' company. After consuming your fair share of alcohol, you decide to take your chances and drive home.

Stumbling out to your vehicle, thoughts rush through your head: "I'm OK to drive. No problem, I've got this." You get into your vehicle, put the keys in the ignition and drive off into the night, not realizing the impact your decision may have on the rest of your life — or those you may encounter on the journey home.

Not surprisingly, you make it home safely as you have hundreds of times before. You wake up the next morning with a slight headache or queasy stomach as the only reminder of the past evening. You then spend the rest of the day planning another evening out with friends.

For many, this is a typical weekend. If not, it's certainly an experience to which most can relate. For others, however, the evening doesn't go quite as

FYI

According to the National Highway Traffic Safety Administration, a motorist is likely to drive 200 times under the influence before being charged with their first DUI; or for every 10 vehicles on the road with you, one is being operated by an impaired driver; or every 30 minutes, someone in the United States is killed as a result of an accident caused by an impaired driver.

According to the Insurance Institute for Highway Safety, 1 in 50 alcohol-impaired drivers are arrested. While this may seem to some like the odds are in the favor of the impaired motorist, others may realize how unsafe our roads must be because of all the impaired motorists who have not yet been caught, or those who are repeat offenders.

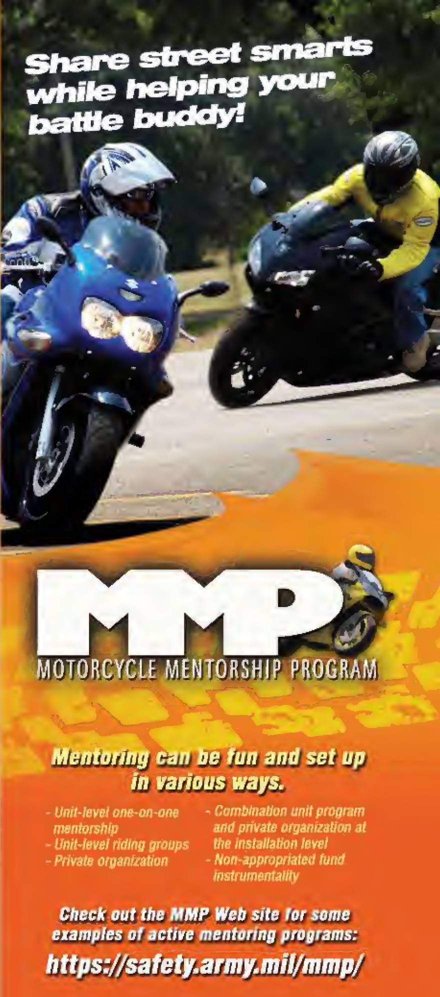
Research and organizations such as Mothers Against Drunk Driving report more than 30 percent of alcohol-impaired drivers arrested are repeat offenders.

described. Rather, the night ends with bright, colorful lights flashing in the rearview mirror. Or, we don't remember anything except waking to a smashed windshield and blurred vision from the blood dripping into our eyes. Even worse, we wake in an unfamiliar place, either behind bars or in a hospital room with a medical examiner reporting the results of a horrific accident that occurred because an alcohol-impaired driver thought they were "OK to drive."

This is a problem that continues to raise its ugly head. But there is a response. Army safety professionals and researchers continue looking at what motivates Soldiers to place their lives and those of others at risk by driving under the influence. While the battle remains ongoing, there have been some tactics — best practices — that have proven helpful. Here are some examples:

- Never allow a battle buddy to drive after having "one or more" drinks.
- Never allow yourself to ride with a driver who has consumed alcohol.
- Volunteer to be a designated driver.
- Plan your evening ahead of time by ensuring a safe return home (make arrangements for a ride home, call a cab), or just stay home and drink responsibly.

Don't let being lucky in the past make you foolish in the future. Ask yourself, "Have I ever been out drinking and later couldn't remember how I drove home?" If the answer is "yes," then take a moment to ask yourself, "What price am I willing to pay to continue drinking and driving? Am I willing to sacrifice the rest of my life? Am I willing to live with the knowledge that I killed one or more of my friends or some other innocent motorist because I thought I could drive with a "buzz?" Remembering the answer you gave yourself when you were sober should help you make a safer decision when you're not.«



Share street smarts while helping your battle buddy!

MMP
MOTORCYCLE MENTORSHIP PROGRAM

Mentoring can be fun and set up in various ways.

- Unit-level one-on-one mentorship
- Unit-level riding groups
- Private organization
- Combination unit program and private organization at the installation level
- Non-appropriated fund instrumentality

Check out the MMP Web site for some examples of active mentoring programs:
https://safety.army.mil/mmp/

MERGING SAFETY WITH DRIVING

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During last year's winter holiday season, my Family and I drove from North Carolina to Florida to visit my in-laws. As we made the roughly 600-mile, 10-hour trip, I was reminded how important it is that people share the road courteously and responsibly. One place where that is particularly important is when merging with highway traffic.

Even though we do it every day, merging into traffic is a feat that even seasoned drivers sometimes have a hard time safely accomplishing. When it comes to merging, there are several factors that play into safety, including yielding to right-of-way, matching speeds and one-to-one merging. We'll look at these below.

Yielding

One of the definitions for "yield" in Webster's Dictionary is "to give or render as fitting, rightfully owed or required." The problem is we Americans can be a greedy lot when it comes to yielding possession of the road. Yet, despite that, yielding is important to the safety of both those drivers already on the road and those trying to merge.

Merging drivers are responsible to yield to highway traffic and to signal their intentions early enough for other drivers to properly plan and react. However, it's not just merging drivers who need to yield. Although drivers on the road have right-of-way, they should be willing to yield, as needed, to allow space for merging drivers to safely enter the flow of traffic. Matching speeds, as described below, can help make that process easier, safer and less aggravating for both drivers.

Matching Speeds

Matching speeds is important to reduce the difference in speed between drivers on the road and those attempting to merge. To do that, merging drivers need to use the onramp and, if available, merging lane to accelerate to just below the traffic speed. Highway drivers should slow down slightly to provide merging drivers room to enter the road and reach highway speed.

Another option for drivers on the road is, when possible, to signal and change lanes to their left. This frees the right-hand lane for merging traffic to enter safely. It is important to know the state's rules about driving in the left lane so that you don't "camp" there if it is not legal. You should reenter the right lane when it is safe to do so.

One-to-One Merging

Another alternative is one-to-one merging, which alternates a vehicle on the road with a merging vehicle. Drivers on the road and merging drivers effectively alternate "taking their turn" in the right lane, allowing them to share the road in a predictable, equitable fashion. To make this work safely, drivers on the road should keep, at a minimum, a two-second following interval behind the vehicle ahead. This leaves room for merging drivers to enter the roadway and helps avoid tailgating — a dangerous situation that can lead to road rage.

All the Rage

Speaking of anger on the road, there's a reason many police officers park near merging lanes and watch the traffic; such places are common locations for road rage. A vehicle gets cut off or someone speeds, blocking a driver from merging and forcing them to stop in the merging lane, and the blood starts boiling. Such incidents can lead to road rage as drivers seek to get "even" with those who have offended them.

Because of increased traffic congestion and driver distraction as motorists try to move to the proper lane, it's especially important to yield without letting tempers flare. Acting out road rage is against the law and can land a driver in jail, in addition to paying stiff fines and penalties.

Don't Pick a Fight

If you're on the highway and approaching an onramp ahead, remember the advice about matching speeds. Slow down and leave room for the merging vehicle to enter the road ahead of you. Remember to use the two-second following rule on the road to leave a safe interval. Understand it's not worth your life or someone else's to save those two seconds. Speeding up to block someone from merging can earn you a ticket for tailgating or aggressive driving. Check your ego; you'll get over being ticked a lot faster than you'll get over being ticketed.

Chilling Out

Merging on wintry roads covered with snow or ice requires extra care if you want to avoid a collision or winding up in a ditch. If you're on the highway, it's best to signal and move to the lane on your left. This allows merging drivers the extra room they need to slowly accelerate on the onramp, get onto the highway and gradually speed up to match the traffic flow. The last thing you want yourself or anyone else to have to do is suddenly brake on a slick road.

The "Squeeze" Play

Not all merging situations involve traffic entering a highway. Sometimes, road construction or accidents force drivers to merge

into a single lane. Planned lane closures, such as for road construction, are normally well marked in advance, alerting drivers to what lies ahead. Temporary lane closures, such as those caused by accidents, require drivers to be alert to the road situation ahead. In both cases, there will be some drivers who will stay in the lane being closed until the last second and then attempt to merge. While this "cutting in line" often angers other drivers, trying to block them could lead to serious consequences, such as driver confrontations or multiple-car crashes.

Bottom Line

While it's easy to feel we "own" the stretch of road we are on, it's a lot wiser to be willing to share it with others. After all, which would you rather be behind on the road — a merging driver or a tow truck?«

Editor's note: Information for this story was derived from the American Safety Council's SafeMotorist Web site, which is available at www.safemotorist.com.

READY FOR THE RISK?
GRAT
GROUND RISK ASSESSMENT TOOL
https://safety.army.mil
Ground Risk Assessment Tool
Daily Stats
GRAT-S
http://safety.army.smil.mil

The Ground Risk Assessment Tool is designed to aid in mitigating risk by reinforcing the five-step composite risk management process.

GRAT-S is now available and allows Leaders in forward-deployed units access to GRAT on the SIPRNET.

UH-60 TAIL

CHIEF WARRANT OFFICER 4 DAVID J. PAULEY
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Since 2004, the Black Hawk community has experienced five Class A accidents involving tail rotor issues. The Directorate of Evaluation and Standardization (DES) has provided subject matter experts (SMEs) to assist the U.S. Army Combat Readiness/Safety Center with the investigation of three of those accidents.

After conducting analysis and developing findings, both contributing and noncontributing, we have concluded that aviators may lack the individual training to adequately diagnose and apply the correct procedures for some tail rotor malfunctions. In addition to a lack of training for certain tail rotor malfunctions, we discovered several written documents providing guidance to trainers, as well as manuals educating aviators in aerodynamics, are lacking when referencing anti-torque emergencies and tail rotor control authority.

Beginning in January 2009, DES standardization pilots conducted an informal poll. The goal was to assess how well aviators recognize and react appropriately to a tail rotor malfunction when given a specific scenario, either verbally or in the Synthetic Flight Training Systems.

The scenario: "After you receive a takeoff clearance from air traffic control or following an extraction of troops in a landing zone, you apply approximately 80 percent of your maximum torque available. On takeoff and just below effective translational lift, you begin a left turn with left pedal and the aircraft begins an uncommanded left yaw that you cannot stop. What are your actions?"

Shockingly, 96 percent of aviators, to include trainers, replied with "autorotate." From that, it did not take long for us to realize we had

ROTOR ISSUES

a training failure in our branch. Based on further queries and investigations, we concluded that aviators, following their transition to the Black Hawk, receive little additional training or education on the aerodynamics or flight characteristics of a tail rotor that is either applying too little or too much thrust for a given situation.

After visiting several aviation units in garrison and combat, we found that training for tail rotor and loss of control malfunctions focused primarily on loss of thrust conditions in cruise flight. Although this is a major concern to any single-rotor helicopter, we learned through these accidents — including four of the five Class A accidents since 2004 — that a left spin condition at low airspeeds, or at a hover, can be just as catastrophic.

In addition to the training analysis, we reviewed several documents, including Army Regulation (AR) 95-1, Flight Regulations, and Training Circular (TC) 1-237, Aircrew Training Manual, Utility Helicopter, H-60 Series. As stated in the current AR 95-1, "In multi-engine helicopters, touchdown autorotations and anti-torque touchdown emergency procedure training is prohibited." This regulation prohibits the touchdown anti-torque emergency procedures that our single-engine helicopter brethren have enjoyed for many years (remember the good ol' days of manual throttle operation to control heading?). However, it does not preclude trainers from creating scenarios that would induce fixed-pitch settings in the tail rotor, and training without landing the helicopter.

Delving into Field Manual (FM) 3-04.203, Fundamentals of Flight, we perceive a lack of information explaining the aerodynamics of the UH-60 tail rotor. For many years, we shared the benefit of an anti-torque system that appears to have complete control authority in every situation. Because we do not fully understand the total authority, it is possible aviators have, due to a lack of discipline, applied an excessive amount on takeoff and were unable to recover from the maneuver. This was the case in at least one of the accidents.

Although investigations are ongoing to identify the root causes of these accidents, we are working toward solutions to ensure aviators are better prepared to confront this situation from both a knowledge and skills perspective. In addition to this article, DES, with the assistance of other SMEs and in conjunction with other aviation agencies, completed a rewrite of the Tail Rotor Emergency Procedures to be included in change No. 3 in the operator's manuals of all H-60 series aircraft. In addition, revisions to task 1070, Perform Emergency Procedures, from TC 1-237 may be forthcoming to include a greater emphasis on anti-torque malfunctions. As we continue on the road ahead, revisions to FM 3-04.203 and other manuals will include more detailed information on the aerodynamics of the tail rotor system to aid in our understanding.

While we may never know exact causes of accidents, we will continue to ensure Army aviators are properly trained to give them the best chance of survival. To quote an unnamed source, "Army aviation training includes 10 percent learning to fly and 90 percent on what to do when something goes wrong." We are asking the field to immediately address this training deficiency by including routine emergency procedure training specifically addressing anti-torque malfunctions during all modes of flight, including not only lack-of-thrust conditions, but fixed-pitch high-power settings as well. We hope these accidents will cease; but since hope is not a method, we, as professional aviators, must train our force to manage these situations.«

Bells, Whistles and Other Distractions

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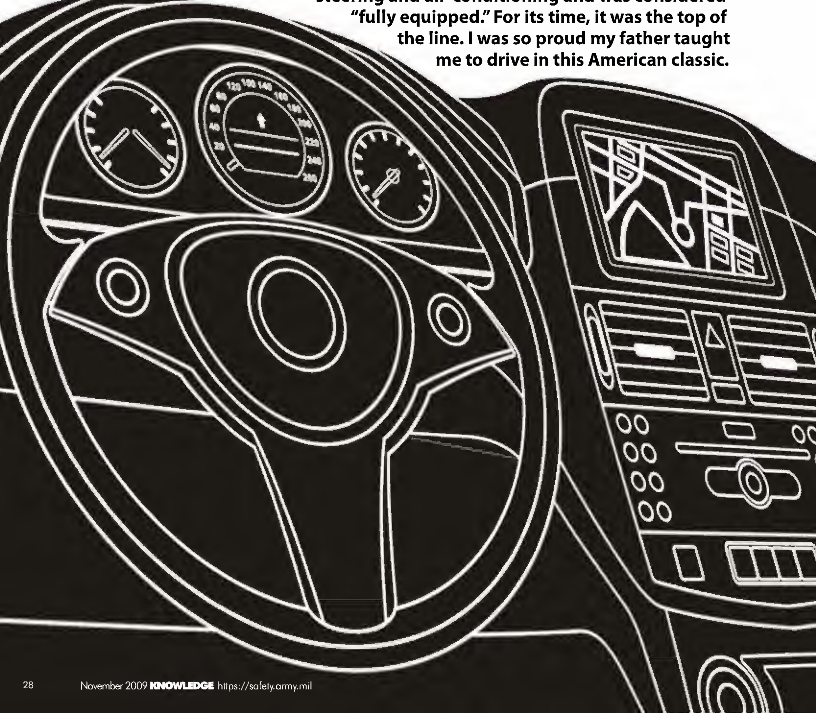
Driving today's vehicles is a lot more challenging than when I started in 1984. Back then, my father drove a 1981 Chevrolet pickup truck. It had power steering and air-conditioning and was considered "fully equipped." For its time, it was the top of the line. I was so proud my father taught me to drive in this American classic.



As time went by, I graduated from a learner's permit to a driver's license and got to drive my mother's 1984 Subaru hatchback sedan. The Subaru was definitely a step up in comfort with its power windows, cassette player, air-conditioning and electric seats. While it was safer to drive than the truck, it also had a lot more distracters.

Last year, I purchased a 2008 Chevrolet Tahoe LTZ. When I walked into the dealership and chose a salesman, I specifically told him I wanted a vehicle with all the bells and whistles. The salesman kindly escorted me to the vehicle lot with keys in hand to show me the most remarkable sport utility vehicle (SUV) I had ever seen.

Chevrolet spared no expense designing this SUV with all the creature comforts a driver or passengers could want. It came equipped with leather power seats, air-conditioning, an iPod connector, OnStar car phone, touch-screen DVD player, radio and navigation screen. But why

BELIEVE IT OR NOT!

Think you've seen wackiness behind the wheel? During 2008, Nationwide Mutual Insurance Company conducted a distracted driver study where participants listed the most outlandish things they'd done while driving. The results were broken down by gender, generation (Gen Y, 18 to 27 years old; Gen X, 28 to 44; Baby Boomers, 45 to 60) and location. With Nationwide's permission, here is their "Top Ten" most bizarre driving list.

10. **Trying to kill a spider in the backseat with my son, while driving car with a manual transmission. (Gen Y female, Richmond)**
9. **Study for a test with open notes/books while driving about 75 mph down the highway. I did this more than once. (Gen X female, Sacramento)**
8. **Probably holding the phone with one hand, curling my hair with the other and driving using my knee. (Gen Y male, Phoenix)**
7. **Painting my toenails. (Gen X female, San Antonio)**
6. **Peed out the window while going down the road. Well, you asked! (Baby Boomer male, Sacramento)**
5. **The most risky thing I have done in a moving car would have to be trying to change my shoes to a pair of heels with straps that were getting tangled on the brakes. (Gen Y female, Dallas)**
4. **Fed my baby a bottle that was in the backseat while I was driving. (Gen Y female, Memphis)**
3. **I wear sandals or slip-on shoes 90 percent of the time. So, I always take my left shoe off and put my foot up on the seat. I have a drink in one hand, a smoke in the other hand, and drive (steer) with my left foot. (Gen X female, Memphis)**
2. **Staring contest with passenger. (Gen Y male, Los Angeles)**
1. **Shaving legs, eating a taco, putting on make-up and drinking alcohol at the same time. (Gen Y female, San Antonio)**

would I, the driver, need so many options? How could I safely navigate on dangerous highways while trying to operate all these options?

Within the first few days, I had so many near misses that it scared me. One night, I decided to read the owner's manual. When I bought the Tahoe, the salesman gave me a 10-minute overview of the truck's features, after which I thought that I was prepared. As I read the owner's manual, I noticed many cautions — including several that really caught my attention. The most important stated, "Do Not Operate Equipment While Driving." It finally dawned on me that this is what I had been doing wrong. As I was learning how to operate the Tahoe, I was also trying to learn its new features. I allowed this learning process to distract me from my driving.

Many times, I'd thought about stopping to make the necessary adjustments, but always seemed to get by while driving. I thought back to my instructors and my father, who always cautioned me to keep both hands on the wheel. However, back then, the hardest thing I had to do was roll down the windows or turn on the air-conditioner or radio.

I was lucky to have survived my near misses.

WHO ROLLED DOWN MY WINDOWS?

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Imagine coming back from a two-week vacation and discovering the windows on your vehicle — left parked in your driveway — were down. That happened to us! We looked inside to see if anything was missing. Fortunately, nothing was amiss.

Then there were the times we parked the car at night, ensured the windows were up and the doors locked, only to come out in the morning and find the front windows down. We drove to the dealership to find out what was happening. They couldn't provide an answer. We were frustrated. I bet you'd be too.

I surfed the Internet looking for recalls or technical service bulletins. I found a lot of people had the same problem and kept searching until I found an answer. It turns out that with our Nissan Altima (and other makes and models of vehicles), this was a feature designed for the driver's convenience.

If you've ever gotten into a car on a hot day with the windows rolled up, you know what an oven feels like. Nissan's answer was to create a way to roll down your windows before getting into the car. Simply pressing the door "unlock" button for three seconds or longer accomplishes that feat.

I knew inside that something was wrong, but I didn't listen to that "inner" voice. If I had, I would've realized I was putting myself and others on the road in danger.

My message is to pay attention when you sense something you're doing isn't safe. Also, read the instructions in your owner's manual. Driving today's vehicles is not as simple as it used to be. And on the road, it is the hazards — not the bells and whistles — that require your full attention.«

Sounds great, right? Well, occasionally there's a small "glitch." I'll sometimes dump the Nissan's keys into my pocket where they'll bounce against change, my pocketknife and other keys. Every so often, the unlock button will get depressed long enough to roll down the windows. Even if I am in the back of our house, the signal can still reach the car.

That got me thinking about security and safety concerns. What if your car's front windows accidentally rolled down while you were inside a restaurant or at a friend's house? What if someone crawled in the backseat? Could you see them hiding there or would you even look? If not, you might be in for an unpleasant surprise.

So what can you do? The answers are simple. First, don't assume your dealer knows everything; that's why you get an owner's manual. Had I read mine, I would have found this feature described in the "Pre-driving checks and adjustments" chapter. If your vehicle has a feature like this, test it to see how far away from the car it works. Also, test it from inside a building — especially your house or apartment. Make sure nothing presses against the button while you're in range.

Modern technology is wonderful — as long as you understand it. However, learning by doing isn't always the best approach. You might get caught with something more than your windows down.«

Get the tools and information necessary to be an engaged Leader
Leader's Corner
https://safety.army.mil
Keep your Soldiers safe on and off duty. Log on TODAY!

LOCKOUT TAGOUT

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Take a look at the three accidents below. Do you know what they have in common?

- A sanitary landfill worker was killed when he tried to clear a jam in a large trash compactor. Unfortunately, he failed to stop, de-energize and lock out the equipment. When he slipped and fell into the hopper, the baling cycle automatically activated, amputating his legs.
- A janitorial worker died after he was trapped inside a hospital laundry dryer while cleaning debris from the inside of the drum. He had propped the door open and entered the dryer drum to begin cleaning, but failed to de-energize or lock out the dryer. When a co-worker restarted the system, not knowing the victim was inside, an overhead conveyor dropped 200 pounds of wet laundry into the dryer, knocking out the prop holding the door open, trapping the victim inside and automatically starting the drying cycle.
- A worker at a concrete pipe manufacturing facility died from injuries he suffered while cleaning a ribbon-type concrete mixer. The procedure was to shut off the power at the breaker panel, push the toggle switch by the mixer to make sure that the power was off and then enter the mixer to clean it. The victim didn't know that the operator, who went to make a phone call, had already de-energized the mixer at the breaker. Thinking he was turning off the mixer, the victim activated the breaker switch and energized the mixer. He then entered the mixer and began cleaning without first pushing the toggle switch to ensure the equipment was de-energized. The operator returned from making his call and pushed the toggle switch to check that the mixer was de-energized. When the mixer started and the operator heard the victim scream, he went immediately to the main breaker panel and shut off the mixer.

So what do these accidents have in common? First, each is an actual case investigated by the National Institute for Occupational Safety and Health (NIOSH). Second, in each case, the resulting outcome was a fatality. Finally, each could have been prevented by implementing an effective lockout/tagout (LOTO) program.

According to the Occupational Safety and Health Administration (OSHA), LOTO refers to specific practices and procedures designed to safeguard employees from the unexpected energizing or startup of machinery and equipment, or the release of hazardous energy during service or maintenance activities.

OSHA estimates about 3 million workers who service equipment face the greatest risk for injury if the appropriate LOTO standards are not in place. In addition, unprotected workers injured on the job from exposure to hazardous energy lose an average of 24 days of work time

DID YOU KNOW?

"The control of hazardous energy (lockout/tagout) shall be developed for each piece of equipment being used and provided to personnel servicing and maintaining that equipment in accordance with 29 CFR 1910.147." — Army Regulation 385-10, paragraph 18-16, Lockout/tagout

to recuperate. Organizations that comply with the LOTO standard prevent an estimated 120 fatalities and 50,000 injuries each year.

What is Hazardous Energy?

According to NIOSH, hazardous energy is any type of energy that can injure or kill a worker should they be exposed to a sufficient quantity. Common sources include electricity, mechanical motion, pressurized air and hot and cold temperatures. Workers can be exposed to hazardous energy releases during installation, maintenance, service or repair of machines, equipment, processes or systems. The following are forms of hazardous energy:

- **Kinetic (mechanical) energy:** Energy in the moving parts of the mechanical system.
- **Potential energy:** Energy that is stored in pressure vessels, gas tanks, hydraulic or pneumatic systems and springs. (Potential energy can be released as hazardous kinetic energy.)
- **Electrical energy:** Energy from generated electrical power, static sources or electrical storage devices (such as batteries or capacitors).
- **Thermal energy:** Energy (high or low temperatures) resulting from mechanical work, radiation, chemical reaction or electrical resistance.

Prevention Measures

On-the-job accidents, such as the ones described at the beginning of this article, are all preventable. The key is for management to develop and implement a LOTO program that clearly delineates the standards and ensures those standards are strictly enforced at all worksites within the organization. Elements of a good LOTO program can protect workers from the forms of hazardous energy described and should consist of the following as a minimum:

- Ensure LOTO plans are developed, established and implemented.
- Ensure affected employees are properly trained in LOTO procedures.
- Survey work areas to identify all sources of hazardous energy potentially impacting machines/equipment to be serviced and lock out all sources.
- Ensure any stored energy (mechanical, hydraulic, air, etc.) has been released or blocked before equipment is locked out for repairs.
- Ensure employees working on a piece of equipment apply their personal (individually keyed) safety lock and tag to the lockout device, and that only the employee exposed to the hazard place or remove them.
- When maintenance activities must extend beyond the current shift, replace the personal locks and tags of the leaving shift with the personal locks and tags of the arriving shift. The leaving shift must ensure the arriving shift understands the maintenance process and hazards.
- Once locks and tags are in place, try to operate the equipment to ensure no lockouts have been missed.
- Locks should not be removed until the maintenance workers and the authorizing employee are satisfied that the equipment is ready to be operated safely.

To develop your LOTO program, be sure to review OSHA Standard 1910.147 and the supplemental information available at https://safety.army.mil/INDUSTRIALSAFETY/LockOutTagOut/tabid/553/Default.aspx.«

» FYI

Department of the Army Pamphlet 385-10, paragraph 14-3, Lockout/tagout, establishes the minimum requirements for the lockout or tagout of energy-isolating devices required to control hazardous energy. It ensures the machine or equipment is isolated from all potentially hazardous energy and locked or tagged out before employees perform any servicing or maintenance activities where the unexpected energization, startup or release of stored energy could cause injury.

The GREAT HORNED OWL Attack

COMMAND SGT. MAJ. RONALD OROSZ
3rd Brigade Combat Team, 1st Infantry Division
Fort Hood, Texas

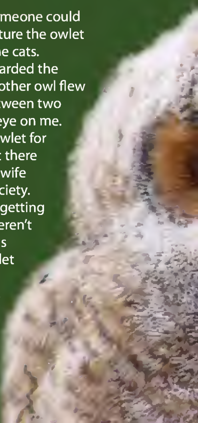
I read the story in the March edition of Knowledge titled "The Deer Catcher" and couldn't stop laughing. It was funny, yet it reminded me to keep my distance from wild animals. I have a similar story that I would like to share.

My wife, Sue, and I loved to go walking in our quiet little neighborhood just outside of Fort Benning, Ga. Late one afternoon while pushing our son around in the stroller, I noticed an owl in a neighbor's front yard. At first, I thought it was one of those fake owls people use to keep birds from nesting around houses. My wife and son stayed on the road while I took a closer look. As I got closer, I could see the head following me ever so slowly and, out of the corner of my eye, I saw a large bird fly above me.

Well, it turned out the owl was, in fact, real and the bird flying over me was the momma owl. I learned later it was a great horned owl and she was guarding her (baby) owlet, which apparently couldn't fly. I moved back to my wife and we discussed what to do. All the while, the mother owl was watching us very carefully.

As we were talking, I noticed cats moving in as if they were surrounding the owlet for a late-night snack. I told Sue we had to save it. The only question was, "How do you save an owlet with its angry mother hovering above?" I quickly came up with a plan. I told my wife to head home and call the Humane Society, hoping someone could come out and capture the owlet and save it from the cats.

I stayed and guarded the owlet while the mother owl flew back and forth between two trees, keeping an eye on me. I stayed near the owlet for about an hour, but there was no sign of my wife or the Humane Society. Meanwhile, it was getting dark and things weren't looking good. I was concerned the owlet would not make it through the night, but there was no way I could



pick it up without the angry mother owl doing something.

I stayed with the owlet for another 10 minutes or so. I looked around and didn't see any cats, so I decided to go home to see what Sue had done. I turned and started walking down the road. I hadn't gone 10 steps when, all of a sudden — "BAM!" — something hit me in the back of my head so hard it made me see stars. I never heard it coming.

I grabbed my head, went to the ground and quickly turned to see the mother owl moving back to her perch. Wow, did that hurt; she knocked the !@#$ out of me! I felt my head and it was wet. More than likely, she cut me with her razor-sharp talons.

I backed off, quickly turned around and ran home. I burst through the front door of my house and told my wife I was hit. "Hit by what?" she asked. I said, "An owl — what else?"

I asked her to check my head. She confirmed I had talon marks imbedded in my scalp and was bleeding. My wife cleaned my wounds with alcohol, as owl talons are pretty dirty with all the critters they catch and eat.

After my head was cleaned, I found out my wife couldn't get through to the Humane Society, or anyone else for that matter (I wondered when she was going to come down the street to tell me). I decided the owlet still needed saving, so I headed back down the street. When I arrived, I looked for the owlet in my neighbor's front yard, but it was gone. I didn't see the mother owl perched overhead in any of the trees. I looked around to see if the cats had found the owlet, but there weren't any signs of the cats either.

I stayed in the area for about 30 minutes, looking all over the place, and couldn't find the owlet. As I turned to walk away, I saw movement in the backyard of a house across the street. It was the mother owl checking on the owlet.

I couldn't help thinking about the owlet all night — probably because the talon marks etched into my head constantly reminded me to let nature take care of its own. I learned the hard way that when you see a wild bird of prey, you definitely want to stay away!«

FYI

Have you ever heard the warning, "Never get between a mother and her cubs?" Owls aren't the only animals that aggressively protect their young. Even small birds will harass larger predators while defending their nests and their young. As the author of the previous article found out, good deeds can sometimes backfire. Before you get a nasty surprise, take a look at the following tips from the U.S. Forest Service.

- **You are responsible for your safety and the safety of wildlife. Please help keep wildlife "wild" by not approaching or feeding them. Animals that get food from people may become aggressive. Our foods may also harm an animal's digestive system or even cause them death.**
- **Do not approach wildlife. All wild animals can be dangerous. Alter your route so you will move away from animals without disturbing them. Do not block an animal's line of travel.**
- **Photograph and watch wildlife from observation areas.**
- **Use binoculars, spotting scopes and telephoto lenses to minimize stress to animals and to provide a safe viewing distance for you.**
- **If an animal approaches you, it is your responsibility to move away and maintain a safe distance.**

Accidents occurred between July 1-31, 2009

AVIATION

AH-64D

CLASS B

- The aircraft experienced an Nr (main rotor speed) peak of 121 percent during a demonstrated simulated dual-engine failure.

CLASS C

- The crew experienced a No. 1 engine-out indication during the engine health indicator test (HIT) check. The No. 1 engine inlet cover cushion "REMOVE BEFORE FLIGHT" banner was ingested by the engine.

CH-47D

CLASS B

- The aircraft sustained damage to three aft rotor blades during landing to a confined area. The blades required depot-level repair.

CLASS C

- The crew was conducting a mission under night vision goggles (NVG) when the aircraft contacted a rock berm during landing, causing the front-left landing gear to separate from the aircraft. The rear-left landing gear also received damage.

MH-6M

CLASS C

- The aircraft experienced an engine/rotor overspeed during flight. The crew received cockpit indication of an electronic control unit failure.

CLASS C

- The aircraft experienced an engine overtorque condition of 116 percent during flight.

OH-58D(R)

CLASS A

- The aircraft descended to ground contact on an incline during flight. The main rotor system contacted the ground and the aircraft sustained major damage. The crew had ambulatory injuries.

CLASS A

- The crew noted a vibration and executed an emergency landing. The aircraft entered a right yaw and contacted the ground left-side low. The crew exited without injuries.

CLASS C

- The aircraft contacted the ground during a manual-throttle operation for readiness-level progression.

TH-67A

CLASS A

- The aircraft contacted the ground as the crew was performing a hover taxi. The instructor pilot suffered significant back injuries and the pilot trainee was treated and released.

UH-60A

CLASS C

- The aircraft experienced an overtemp during a HIT check. Inspection revealed the No. 2 engine inlet cover was in place.

UH-60L

CLASS A

- The aircraft struck a 15-foot-high T-barrier during landing under NVG, potentially damaging the engines, transmissions, driveshafts and main rotor system.

FIXED-WING

C-12U

CLASS C

- The aircraft sustained a lightning strike during flight. Postflight inspection revealed damage to one right engine blade and loss of one static wick.

UC-35A

CLASS C

- The aircraft experienced a bird strike during takeoff.

UAS

RQ-7B

CLASS B

- The unmanned aircraft (UA) experienced an ignition failure following launch and crashed. The UA was recovered.

GROUND

ACV

CLASS A

- A local national was killed when his vehicle was struck by a Mine Resistant Ambush Protected vehicle.

CLASS B

- An M88A2 was damaged when a fire started in the engine compartment. The crew recovered items, initiated the internal fire suppression system and evacuated the vehicle. The fire later reignited and the local fire department responded.

ARMY AVIATION LOSSES

Fiscal 2009

as of Oct. 5, 2009

	Class A/Fatalities
ATTACK	2/1
RECON	10/4
UTILITY	10/7
CARGO	2/0
TRAINING	2/0
FIXED-WING	0/0
UAS	3/0
TOTAL	29/12

ARMY GROUND LOSSES

Fiscal 2009

as of Oct. 5, 2009

	Class A/Fatalities
AMV	20/20
ACV	16/6
PERSONNEL INJURY includes weapons-handling accidents	31/24
FIRE/ EXPLOSIVE	5/1
PROPERTY DAMAGE	4/0
TOTAL	76/51

- A Stryker was damaged when it overturned during a convoy movement. At the time of the accident, the driver was negotiating a turn on a downslope.

AMV

CLASS A

- A Soldier serving as the gunner in an M1115 HMMWV was fatally injured when the vehicle overturned in a sharp curve in the road. The Soldier was not wearing a seat restraint.

CLASS B

- A HEMMT wrecker was damaged when it overturned while towing a 5-ton truck. At the time of the accident, the Soldier driving the wrecker was attempting to reenter his lane after passing a vehicle. The Soldier lost control of the wrecker, causing it to overturn.

PERSONNEL INJURY

CLASS A

- A Soldier was killed when he was struck in the head with a round from an M9 that another Soldier was cleaning.

- A Soldier drowned while swimming in a river at an organizational day event.

DRIVING

POV

CLASS A

- A Soldier was driving his privately owned vehicle (POV) when it drifted off the left side of the road, entered the median, went up an embankment and overturned twice. The Soldier was not wearing his seat belt and was ejected and killed.

- A Soldier was driving his pickup home from his annual tour location when he lost control, overturned and struck a tree. The Soldier was wearing his seat belt and was transported to a medical facility, where he died five days later.

POM

CLASS A

- A Soldier was operating his sportbike, accompanied by a friend on another bike, when they tried to avoid an animal in the road and crashed into each other. The Soldier was evacuated to a hospital, but died two days later. The Soldier had been wearing his helmet and personal protective equipment (PPE).

- A Soldier was operating his sportbike while on transition leave when he lost control, left the road, crashed and died at the scene. The following morning, the Soldier's brother found him lying in a ditch. The Soldier had a half-empty flask of alcohol in his back pocket and, at the time of his crash, was wearing a helmet, T-shirt, jeans and flip-flops.

- A Soldier was on a ride that included another Soldier and two civilians when he drifted onto the right shoulder, lost control on the gravel, struck a guardrail and was fatally injured. The Soldier was thrown forward 84 feet and died after striking a guardrail support. The Soldier was riding with a nonsanctioned

POV DRIVING LOSSES

Fiscal 2009

as of Oct. 5, 2009	Class A/Fatalities
CAR	40/40
SUV/JEEP	17/17
TRUCK	11/11
MOTORCYCLE	34/32
PEDESTRIAN	6/6
OTHER*	3/3

*Includes: vans and ATVs

109

TOTAL DEATHS

Fiscal 2008: 129 3 year average: 124

SET THE STANDARD

Before you ride, always wear:

- ☐ **A helmet manufactured to meet U.S. Department of Transportation or Snell standards.**
- ☐ **Eye protection that meets ANSI code Z87.1.**
- ☐ **Long pants and a long-sleeve shirt.**
- ☐ **Sturdy, over-the-ankle footwear.**
- ☐ **Full-fingered gloves.**

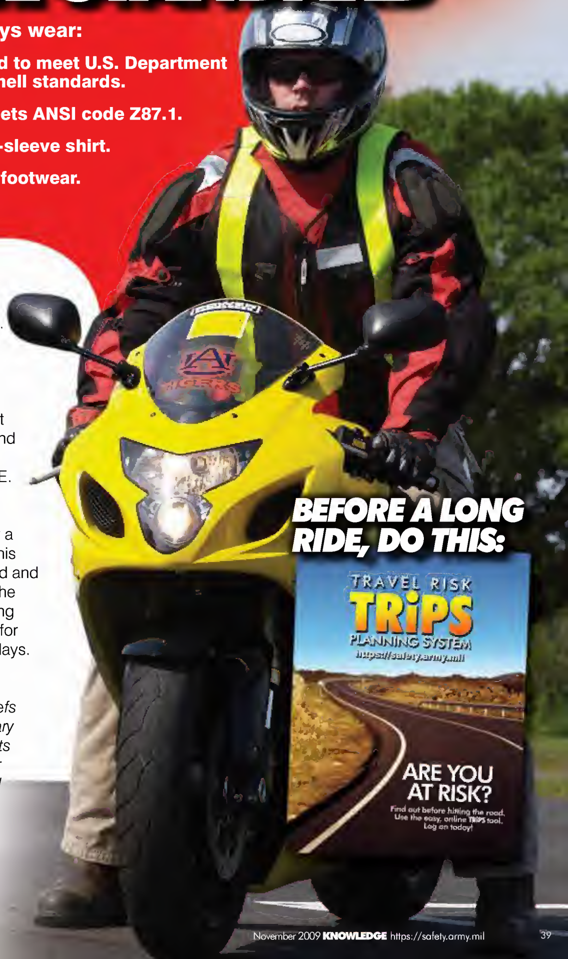
motorcycle club that had a reputation for unsafe riding.

- A Soldier was operating his cruiser-type motorcycle during transition leave when he struck an SUV that entered his path of travel and was killed. The Soldier was wearing his helmet and PPE.

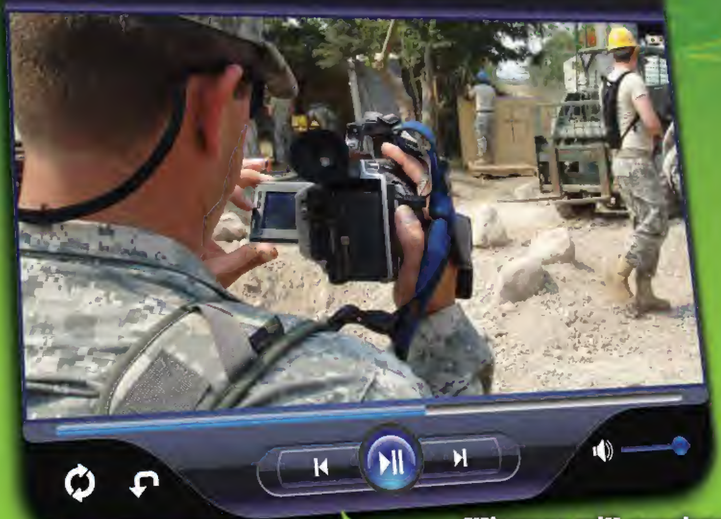
CLASS C

- A Soldier, accompanied by a passenger, was operating his motorcycle while intoxicated and lost control and crashed. The Soldier, who was not wearing any PPE, was hospitalized for five days and lost 10 workdays.

Editor's note: Information published in the accident briefs section is based on preliminary loss reports submitted by units and is subject to change. For more information on selected accident briefs, e-mail safe.knowledge@conus.army.mil.


BEFORE A LONG RIDE, DO THIS:
TRAVEL RISK
TRiPS
PLANNING SYSTEM
https://safety.army.mil
ARE YOU AT RISK?
Find out before hitting the road.
Use the easy, online TRiPS tool.
Log on today!

make a **movie**, save a **life.**



Peer to Peer

Winners will receive:

First Place: A gold medal certificate and a gold "Safety Emmy" trophy and up to $2000 from the Army BOSS program.

Second Place: A silver medal certificate and a silver "Safety Emmy" trophy and up to $2000 from the Army BOSS program.

Third Place: A bronze medal certificate and a bronze "Safety Emmy" trophy and up to $2000 from the Army BOSS program.

The competition runs
Oct. 1, 2009 to April 30, 2010

For more information and contest rules for Peer to Peer, go to **https://safety.army.mil/videocompetition.**

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U.S. ARMY COMBAT READINESS/SAFETY CENTER

ARMY SAFE IS ARMY STRONG

A BAND OF BROTHERS & SISTERS